

BUREAU OF WATER

South Carolina Department of Health and Environmental Control

South Carolina – Savannah River Basin Facilities Water Use Report 2004



August 2005





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**South Carolina Department of Health and
Environmental Control
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Introduction

The Savannah River headwaters originate near Ellicott Rock in the Blue Ridge Mountains, where the border of Georgia, North Carolina, and South Carolina meet. From this point the river travels some three hundred miles to the Atlantic Ocean near Savannah, Georgia. In the three states, the Savannah River Basin drains approximately 10,577 square miles, of which 4,581 square miles are in South Carolina, and incorporates all or portions of 44 counties and two major metropolitan areas, Augusta and Savannah, Georgia. The diverse ecological systems within the basin include agricultural, upland forests, bottomland hardwood stands, pine plantations, free flowing streams, surface impoundments, swamps, and freshwater and maritime marshes. Within the Savannah River Basin, demand on the water resources is increasing at a tremendous rate. Many large and small municipalities utilize surface waters in the basin for drinking water supplies, while power production, industry, agriculture, and other users concurrently place increasing demands on the water resource.

Purpose and Methodology

The purpose of the *South Carolina-Savannah River Basin Facilities Water Use Report 2004* is to summarily present reported water use in the South Carolina Savannah River Basin by county and use category during calendar year 2004. The South Carolina Surface Water Withdrawal and Reporting Act, 49-4-10 et. seq., and the South Carolina Groundwater Use and Reporting Act, 49-5-10 et. seq., require water users that withdraw three million gallons or more in any given month to register with or obtain a permit from and report that use annually to the South Carolina Department of Health and Environmental Control (SCDHEC). Annual reported water use by registered and permitted users provides the base data for this report. Water use is reported in **million gallons** per month. The SCDHEC maintains the water use database utilized in this report.

The Savannah River Basin incorporates thirty-five (35) watersheds and approximately 2.9 million acres within the state of South Carolina (portions of the basin are within the boundaries of Georgia and North Carolina). As delineated by the SC Department of Health and Environmental Control, the Savannah River Basin comprises the Tugaloo River/Seneca River Basin, the Upper Savannah River Basin, and the Lower Savannah River Basin. The Savannah River Basin extends through the three physiographic regions of South Carolina: the Blue Ridge, the Piedmont, and the Coastal Plain. The basin contains approximately 4,857 miles of stream, 106,516 acres of lake, and 3,356 acres of estuarine areas. Additional information on the Savannah River Basin may be found in SCDHEC Technical Report No. 002-03, *Water Quality Assessment Savannah River Basin*, October 2003.

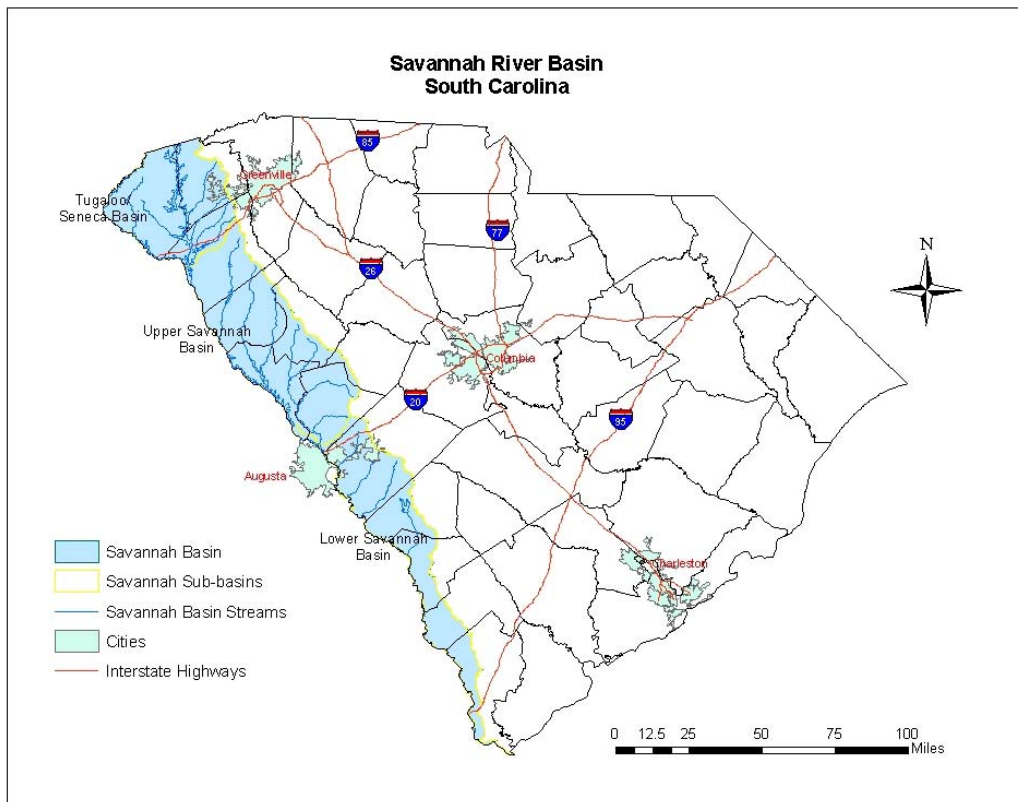


Figure 1

Water withdrawal is defined for surface water and groundwater as "...withdrawing (ground/surface) water in excess of three million gallons in any given month from a single well or intake or multiple wells or intakes under common ownership". Water use reporting of withdrawals above this threshold is required annually, based on monthly usage. Therefore, withdrawals less than the three million gallon per month reporting threshold (private home wells and small community well systems, for example) are not included in this report.

Surface water and groundwater withdrawers are registered and/or permitted in all counties of South Carolina. Groundwater withdrawers within *Capacity Use Areas* are required to apply for and maintain a Withdrawal Permit for regulated groundwater withdrawal activities. Capacity Use Areas have been declared in the Low Country, Trident, Waccamaw, and Pee Dee regions (Figure 2). Portions of Jasper County are located in the Savannah River Basin. Additional information on the Capacity Use program may be obtained from the Department's webpage at www.scdhec.gov/water/html/gw.html.

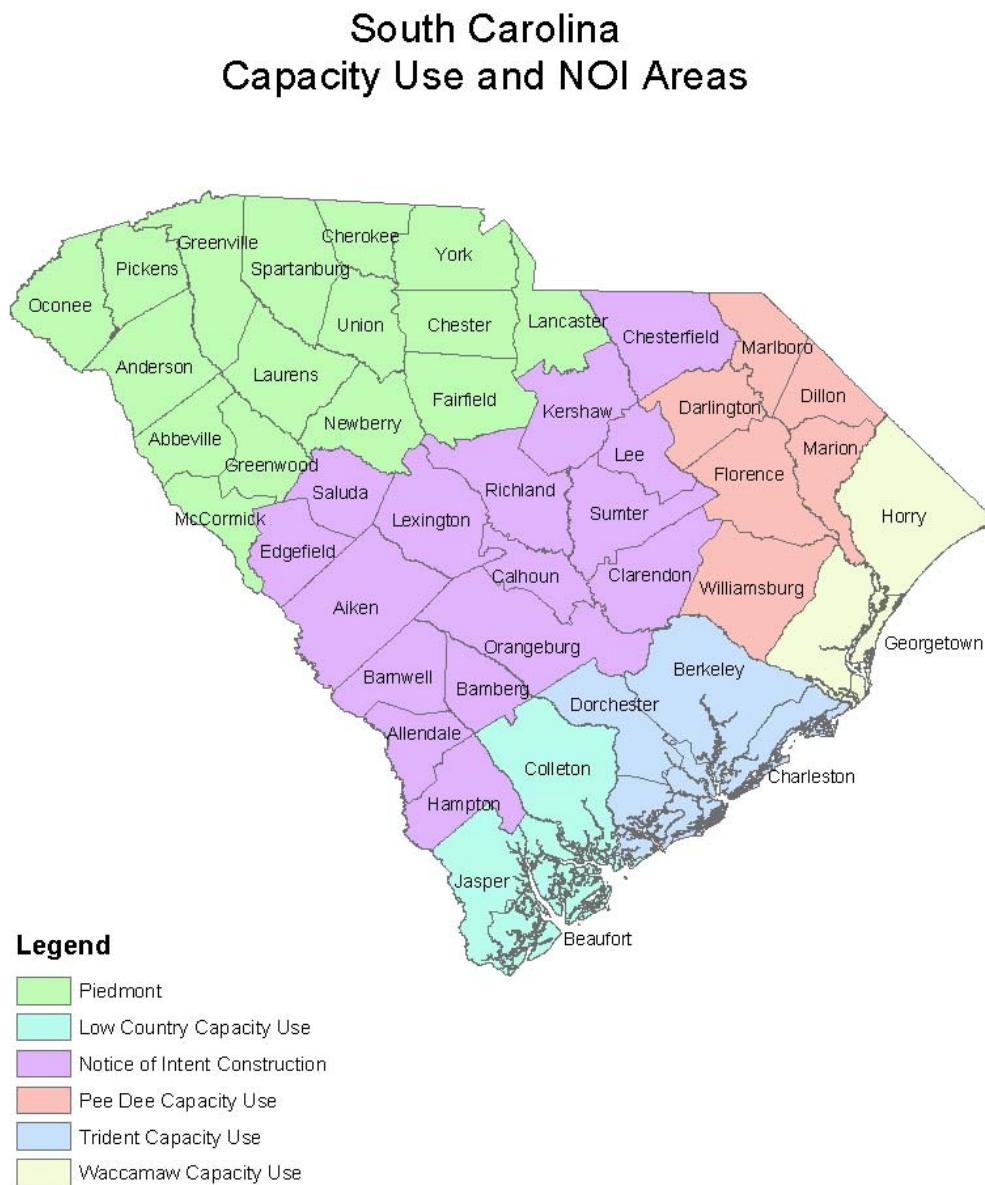


Figure 2

Water withdrawals are reported for the following water use categories for all registered and permitted withdrawers:

Aquaculture water use (AQ) -- Water used for raising, farming and/or harvesting of organisms that live in water, such as fish, shrimp and other shellfish and vegetal matter (seaweed).

Golf course irrigation (GC) -- Water applied to maintain golf course turf, including tee boxes, fairways, putting greens, associated practice areas and periphery aesthetic landscaping.

Hydroelectric water use (PH) -- Water used in generating electricity where turbine generators are driven by falling water.

Industrial water use (IN) -- Water used for commercial and industrial purposes, including fabrication, processing, washing, in-plant conveyance and cooling.

Irrigation water use (IR) -- Water that is used for agricultural and landscaping purposes including turf farming and livestock management.

Mining process (MI) -- Water used in mine operations, including mining, processing, washing and cooling,

Other use (OT) -- Any use of surface water or groundwater not specifically identified in any of the other categories.

Thermoelectric water use (PT) -- Water used in generating electricity from fossil fuel (coal, oil, natural gas), geothermal, biomass, solid waste, or nuclear energy.

Water supply (WS) -- Water withdrawn by public and private water suppliers and conveyed to users or groups of users. Water suppliers provide water for a variety of uses including domestic, commercial, industrial and public water use.

Currently within the Savannah River Basin 100 facilities are registered and 3 facilities are permitted through the Surface Water Withdrawal and Reporting Act and the Groundwater Use and Reporting Act, respectfully, for water withdrawal activities.

Total Facilities	103
Surface Water Facilities	55
(intakes)	71
Groundwater Facilities	43
(wells)	158
Dual Withdrawal	5
(intakes)	6
(wells)	6

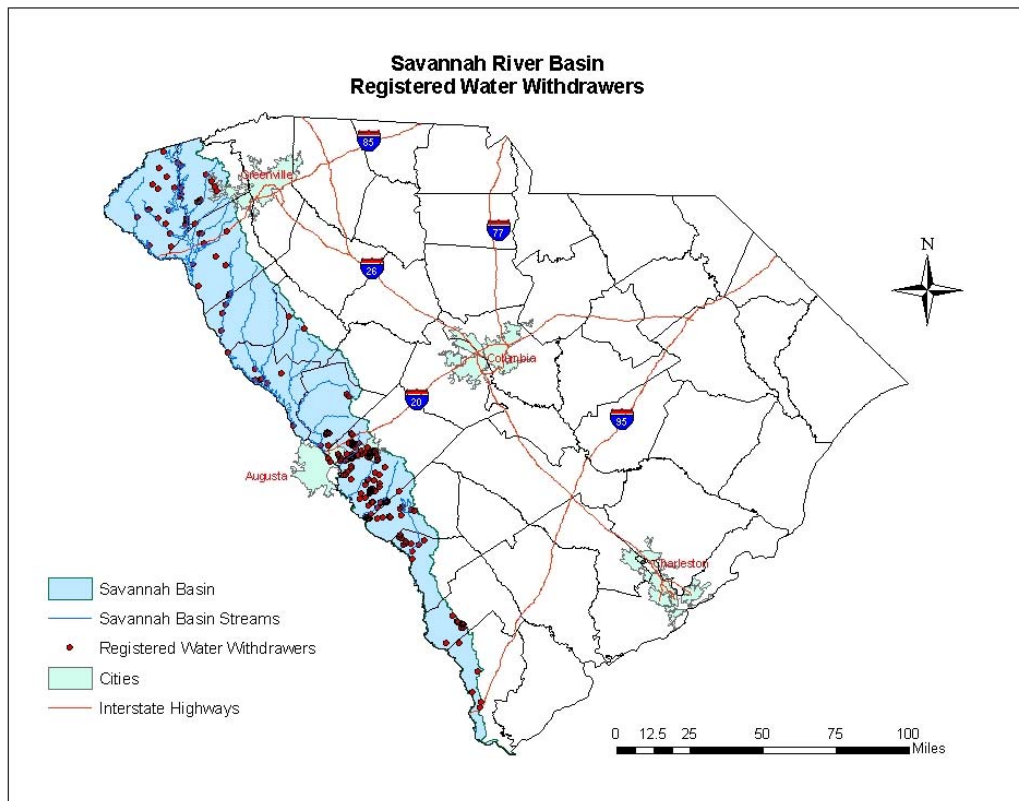


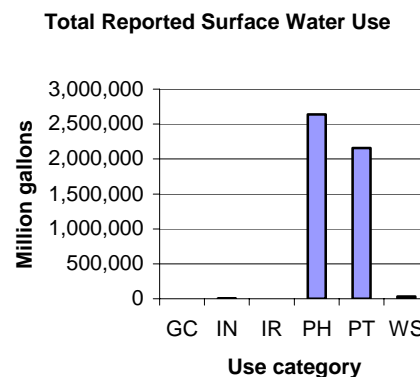
Figure 3

For 2004, total reported water use in the basin was 4,840,171.93 million gallons, of which 2,640,389.20 million gallons (54.5%) was flow-through hydroelectric generation and/or pump storage usage. Surface water use accounted for 4,832,639.32 million gallons (99.8%) and groundwater use accounted for 7,532.61 million gallons.

Surface water use (in million gallons) by category is as follows:

**Chart 1
Total Reported Surface Water Use
by Category**

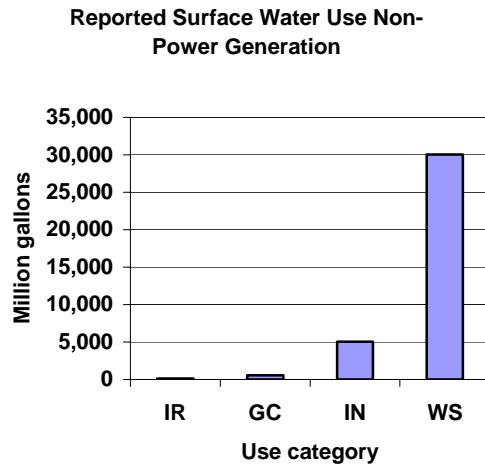
Category	Total Reported Surface Water Use (mg)
IR	117.20
GC	549.71
IN	5,027.60
WS	30,023.33
PT	2,156,532.28
PH	2,640,389.20
Total	4,832,639.32



Surface water use (in million gallons) by category (excluding hydroelectric and thermoelectric power):

Chart 2
Reported Surface Water Use
(excluding power production)

Category	Reported Surface Water Use Non-Power (mg)
IR	117.20
GC	549.71
IN	5,027.60
WS	30,023.33
Total	35,717.84



Groundwater use (in million gallons) by category is as follows:

Chart 3
Total Reported Groundwater Use
by Category

Category	Total Reported Groundwater Use (mg)
MI	29.16
GC	135.80
IR	898.64
IN	2,213.60
WS	4,255.41
Total	7,532.61

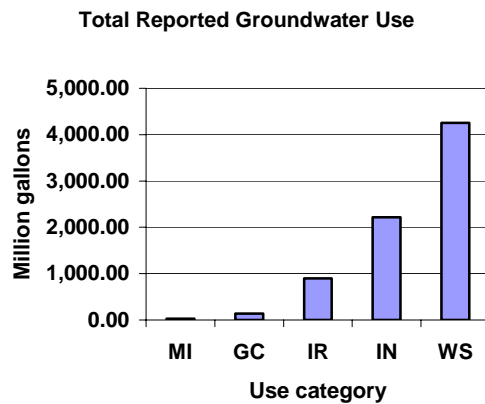


Table 1
Total Reported Surface Water Use
by County

Use by County Surface Water

2004 Total (mg)

County	Agriculture	Golf Course	Industrial	Water Supply	Thermoelectric	Hydroelectric	Total
Greenville	0.000	0.000	0.000	6,914.600	0.000	0.000	6,914.60
Pickens	0.000	71.260	3,044.110	1,192.980	0.000	2,611,758.000	2,616,066.35
Oconee	32.100	103.240	674.440	3,580.240	2,156,241.000	12.200	2,152,301.22
Anderson	0.000	91.870	57.300	6,712.110	291.280	0.000	7,152.56
Abbeville	0.000	0.000	0.000	1,017.240	0.000	28,619.000	29,636.24
Greenwood	0.000	20.750	0.000	0.000	0.000	0.000	20.75
McCormick	0.000	39.570	0.000	421.960	0.000	0.000	461.53
Edgefield	69.100	43.500	0.000	1,545.990	0.000	0.000	1,615.59
Aiken	0.000	179.520	1,251.750	1,459.110	0.000	0.000	2,890.38
Barnwell	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Allendale	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Hampton	16.000	0.000	0.000	0.000	0.000	0.000	16.00
Jasper	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Beaufort	0.000	0.000	0.000	7,179.100	0.000	0.000	7,179.10
Total	117.200	549.710	5,027.600	30,023.330	2,156,532.280	2,640,389.200	4,832,639.32

Chart 4
Total Reported Surface Water Use by County

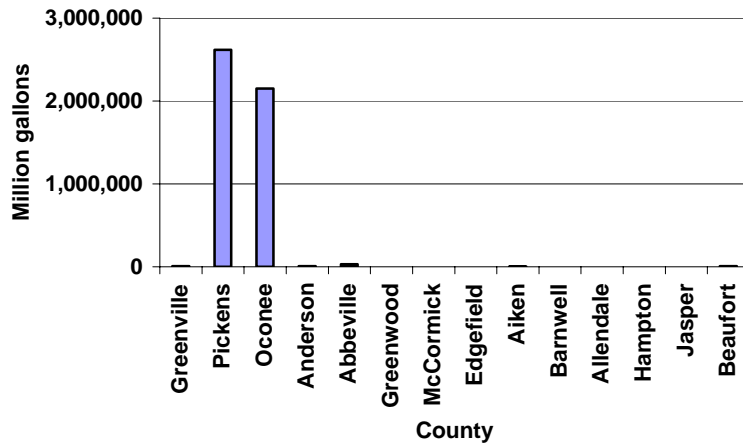


Table 2
Reported Surface Water Use by County
(excluding hydroelectric production)

Use by County	Surface Water					
(excluding Hydroelectric)	2004 Total (mg)					
County	Agriculture	Golf Course	Industrial	Water Supply	Thermoelectric	Total
Greenville	0.000	0.000	0.000	6,914.600	0.000	6,914.60
Pickens	0.000	71.260	3,044.110	1,192.980	0.000	4,308.35
Oconee	32.100	103.240	674.440	3,580.240	2,156,241.000	2,152,289.02
Anderson	0.000	91.870	57.300	6,712.110	291.280	7,152.56
Abbeville	0.000	0.000	0.000	1,017.240	0.000	1,017.24
Greenwood	0.000	20.750	0.000	0.000	0.000	20.75
McCormick	0.000	39.570	0.000	421.960	0.000	461.53
Edgefield	69.100	43.500	0.000	1,545.990	0.000	1,615.59
Aiken	0.000	179.520	1,251.750	1,459.110	0.000	2,890.38
Barnwell	0.000	0.000	0.000	0.000	0.000	0.00
Allendale	0.000	0.000	0.000	0.000	0.000	0.00
Hampton	16.000	0.000	0.000	0.000	0.000	16.00
Jasper	0.000	0.000	0.000	0.000	0.000	0.00
Beaufort	0.000	0.000	0.000	7,179.100	0.000	7,179.10
Total	117.200	549.710	5,027.600	30,023.330	2,156,532.280	2,192,250.12

Chart 5
Reported Surface Water Use by County
(excluding hydroelectric production)

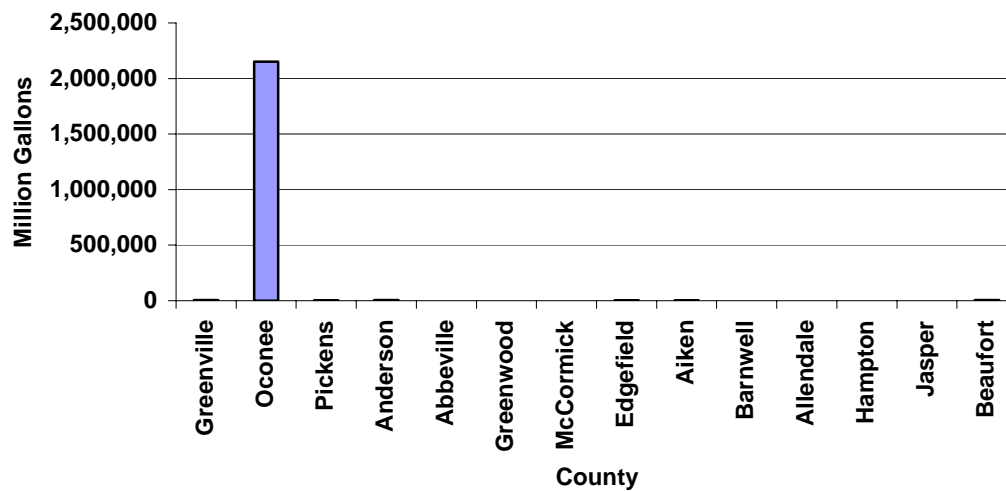


Table 3
Reported Surface Water Use by County
(excluding all power production)

Use by County		Surface Water			
(excluding Hydroelectric)		2004 Total (mg)			
County	Agriculture	Golf Course	Industrial	Water Supply	Total
Greenville	0.000	0.000	0.000	6,914.600	6,914.60
Pickens	0.000	71.260	3,044.110	1,192.980	4,308.35
Oconee	32.100	103.240	674.440	3,580.240	4,390.02
Anderson	0.000	91.870	57.300	6,712.110	6,861.28
Abbeville	0.000	0.000	0.000	1,017.240	1,017.24
Greenwood	0.000	20.750	0.000	0.000	20.75
McCormick	0.000	39.570	0.000	421.960	461.53
Edgefield	69.100	43.500	0.000	1,545.990	1,615.59
Aiken	0.000	179.520	1,251.750	1,459.110	2,890.38
Barnwell	0.000	0.000	0.000	0.000	0.00
Allendale	0.000	0.000	0.000	0.000	0.00
Hampton	16.000	0.000	0.000	0.000	16.00
Jasper	0.000	0.000	0.000	0.000	0.00
Beaufort	0.000	0.000	0.000	7,179.100	7,179.10
Total	117.200	549.710	5,027.600	30,023.330	35,717.84

Chart 6
Reported Surface Water Use by County
(excluding all power production)

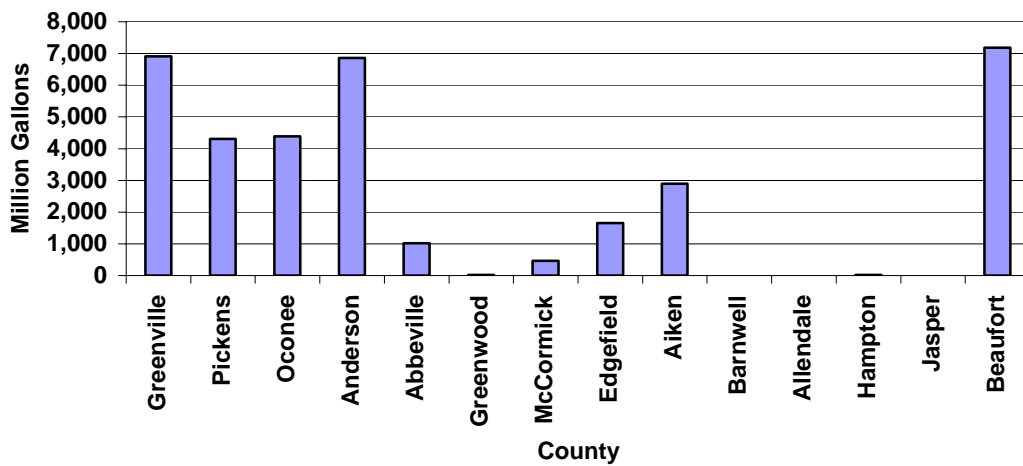


Table 4
Total Reported Groundwater Use
by County

Use by County Groundwater

2004 Total (mg)

County	Agriculture	Golf Course	Industrial	Water Supply	Mining	Aquaculture	Thermoelectric	Hydroelectric	Total
Greenville	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Pickens	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Oconee	0.000	0.000	0.000	25.470	0.000	0.000	0.000	0.000	25.47
Anderson	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Abbeville	0.000	0.000	0.000	2.800	0.000	0.000	0.000	0.000	2.80
Greenwood	0.000	0.000	0.000	0.700	0.000	0.000	0.000	0.000	0.70
McCormick	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Edgefield	0.000	75.850	0.000	0.000	0.000	0.000	0.000	0.000	75.85
Aiken	5.070	29.900	1,323.180	3,951.060	29.160	0.000	0.000	0.000	5,338.37
Barnwell	0.000	0.000	0.000	56.170	0.000	0.000	0.000	0.000	56.17
Allendale	710.070	0.000	890.420	0.000	0.000	0.000	0.000	0.000	1,600.49
Hampton	132.500	30.050	0.000	124.510	0.000	0.000	0.000	0.000	287.06
Jasper	51.000	0.000	0.000	94.700	0.000	0.000	0.000	0.000	145.70
Beaufort	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Total	898.640	135.800	2,213.600	4,255.410	29.160	0.000	0.000	0.000	7,532.610

Chart 7
Total Reported Groundwater Use
by County

